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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/686,663	10/11/2000	Jay A. Alexander	10961066-1	4949

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AGILENT TECHNOLOGIES, INC.
INTELLECTUAL PROPERTY ADMINISTRATION, LEGAL DEPT.
P.O. BOX 7599
M/S DL429
LOVELAND, CO 80537-0599

EXAMINER	
WEST, JEFFREY R	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/686,663	ALEXANDER, JAY A.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29,44-49,51 and 53-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29,44-49,51 and 53-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the response filed on February, 16, 2005, PROSECUTION IS HEREBY REOPENED. A new grounds of rejection is set forth below.

Claim Objections

2. Claims 1, 3, 4, 11, 12, 22, 25, 44, 45, 48, 51, and 63 are objected to because of the following informalities:

In claim 1, line 10, "comprises" should be ---comprising---.

In claim 1, line 11, "each said pulse" should be ---each of said plurality of pulses---.

In claim 3, line 3, "previously acquired" should be ---time-varying analog---.

In claim 4, line 4, "of number" should be ---of a number---.

In claim 11, lines 3-4, "each specified transition percentage" should be ---specified transition percentages---.

In claim 12, line 2, "the quantity" should be ---a quantity---.

In claim 12, line 3, "level value" should be ---level values---.

In claim 22, lines 3-4, "each specified transition percentage" should be ---specified transition percentages---.

In claim 22, line 4, "the pulse" should be ---the plurality of pulses---.

In claim 25, line 11, "comprises" should be ---comprising---.

In claim 25, line 12, "each said pulse" should be ---each of said plurality of pulses---.

In claim 44, line 13, "comprises" should be ---comprising---.

In claim 44, lines 13-14, "each said pulse" should be ---each of said plurality of pulses---.

In claim 45, line 2, "the type" should be ---a type---.

In claim 45, line 6, "each said pulse" should be ---each of said plurality of pulses---.

In claim 48, line 3, "said top signal level and said base" should be ---a top signal level and a base---.

In claim 51, lines 1-2, "the operator" should be ---an operator---.

In claim 63, line 2, "the operator" should be ---an operator---.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10, 16, and 60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 16 are considered to be vague and indefinite because they attempt to further limit "said measurement parameters" while there is no previous mention of any "measurement parameters". Therefore, it is unclear to one having ordinary skill in the art as to what "said measurement parameters" refers.

Claim 60 is considered to be vague and indefinite because it depends from cancelled claim 52. For the instant Office Action, it is assumed that claim 60 depends on claim 44 rather than claim 52.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 9, 11, 22, 24, 25, 44, 57, and 60-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,222,028 to LaBarre et al. in view of U.S. Patent No. 6,598,224 to Maeda et al.

LaBarre discloses a pulse analysis/management system, including a digital oscilloscope (column 6, lines 54-58) that obtains a time-varying analog pulse signal (column 3, lines 67-68), digitizes and stores the samples in an acquisition memory during a single acquisition (column 7, lines 7-16 and 24-29) and automatically/without operator involvement provides measured characteristics of each of the previously stored plurality of pulses for storage in a searchable data storage array, suitable for an implementing application (column 9, lines 44-52), using positive and negative pulse time indications (column 11, lines 33-38). LaBarre also

discloses a transition calculator that determines operator-provided transition signal levels and times at each of one or more transition percentages, wherein each percentage is a percentage of a difference between two signal levels (top and base) having a logical interpretation for comparison (column 9, line 52 to column 10, line 9 and column 12, lines 60-66).

LaBarre also discloses that the measured characteristics stored in a searchable data storage array comprise results of pulse measurements taken of each of the plurality of pulses (i.e. voltage) (column 4, lines 34-49) as well as pulse global measurement statistics comprising results of statistical analyses (i.e. mean) of at least one of the pulse measurements (i.e. DC offset) (column 7, line 61 to column 8, line 6).

LaBarre also discloses storing a plurality of measurement characteristics in a searchable array, in response to the acquisition memory storing the acquired signal (column 9, lines 41-45 and column 12, lines 47-66), that is accessed by a user entering a particular pulse number (column 4, lines 7-11) as well as presenting the pulse characteristics in a signal pulses data table that comprises a pulse identifier identifying each pulse of the acquired signal as a relative occurrence with respect to the other pulses in the sequence in which they occur (i.e. sequential pulse numbers) and a plurality of pulse measurement results associated with each said pulse identifier (column 4, TABLEs 1 and 2).

LaBarre also discloses populating the data structure with pulse measurement data in accordance with measurement parameters provided by an operator through a user interface (column 4, lines 7-11 and 50-53).

As noted above, the invention of LaBarre teaches many of the features of the claimed invention and while the invention of LaBarre does teach storing a plurality of measurement characteristics in a searchable array (column 9, lines 41-45 and column 12, lines 47-66) that is accessed by a user entering a particular pulse number (column 4, lines 7-11) as well as presenting the pulse characteristics in a signal pulses data table that comprises a pulse identifier identifying each pulse of the acquired signal as a relative occurrence with respect to the other pulses in the sequence in which they occur (i.e. sequential pulse numbers) and a plurality of pulse measurement results associated with each said pulse identifier (column 4, TABLEs 1 and 2), LaBarre does not explicitly indicate that the data is stored in the memory in this form.

Maeda teaches a data management unit, computer system and computer-readable storage medium comprising means for storing a plurality of types of data including identifiers for a data number, data type, data name, and associated data parameters in the form of a chart in memory (column 11, lines 27-31 and Figure 6).

It would have been obvious to one having ordinary skill in the art to modify the invention of LaBarre to specifically indicate that data in the tables of LaBarre is stored in a memory because Maeda suggests a well-known data structure that

would present data in a clear and concise manner for easy access and/or display by the user (column 2, lines 38-46, column 11, lines 27-31 and column 12, lines 8-18).

7. Claims 4-6, 8, 10, 12-17, 19-21, 26-28, 49, 53-56, and 59, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over LaBarre in view of Maeda and further in view of U.S. Patent No. 5,003,248 to Johnson.

As noted above, the invention of LaBarre and Maeda teaches many of the features of the claimed invention and while the invention of LaBarre and Maeda does teach a basic pulse analysis system, the combination does not specifically include a means for further analyzing the pulses according to a calculated histogram.

Johnson discloses a probability density histogram display for use as a pulse management system including a digital oscilloscope that obtains an analog time-varying pulse signal, buffers and applies the signal to a sampling bridge that samples the input signal in a single acquisition and measures a voltage characteristic of each of the pulses in series before passing the voltage value to a holding circuit and an ADC that digitizes the voltage levels and stores the digitized voltage samples in a memory with each sample uniquely identified by a single digital word identifier (column 3, lines 19-31). Johnson then discloses a means for automatically (without user involvement) using the previously obtained/stored values to form a histogram (column 3, lines 31-37) of a distribution of the number of

occurrences that the acquired signal is obtained over a specified time range (column 1, lines 63-68).

Johnson discloses a means for determining one or more modes of the histogram that has a logical interpretation (i.e. digital values stored in the memory indicating the number of occurrences) indicating which signal levels occur most frequently in the histogram (column 4, lines 17-24).

Johnson discloses a transition calculator/data analyzer for determining/measuring the transition signal levels and times at one or more transition percentages, including base and top levels of the pulses, at user-defined and/or 10%, 50%, and 90% levels (column 1, lines 34-45, column 2, line 42, and column 4, lines 24-30) through a user interface (column 3, lines 13-15). Johnson also discloses that the memory holding the voltage values is searchable in that the values are searched to determine if a particular amplitude meets a predetermined threshold percentage wherein if the predetermined threshold is reached, the amplitude occurrence is displayed (column 4, lines 34-44).

Johnson also discloses using the method to analyze, and store data from, a plurality of input channels each with corresponding graphs of user-selected pulse waveforms on a single display (column 3, lines 51-54). Figure 4 of Johnson discloses a sine wave in a time-domain having two signal levels producing a corresponding histogram with two peaks "200A" (i.e. bimodal). Further, since the invention of Johnson teaches displaying a plurality of data graphs corresponding to a plurality of input sources, wherein the histogram display for each source is optional

(abstract) it is considered inherent that the source must provide some type of measurement parameter based on a user indicating to the processing system memory that the histogram is to be calculated and displayed. Johnson also discloses displaying the results of the predetermined and operator defined statistical mode, probability value, and percentage measurements (i.e. operator defined distal and proximal percentage levels) (column 2, line 42 and column 4, lines 17-44).

Johnson also discloses storing the pulse data as a single digital word data unit in a buffer/database/array (column 3, lines 38-50), having use in implementing oscilloscope applications, wherein the single data unit uniquely identifies each pulse of the acquired signal, the measured amplitude of the pulse, as well as the corresponding time of occurrence with respect to the other pulses indicating the time corresponding to when a (rising-edge) trigger event caused the storage of the signal (column 5, lines 21-30).

Johnson also discloses that the pulse data and digital word identifiers are automatically stored in a sequential order of occurrence in the buffer in response to the initial sampling and conversion of the input signal (column 3, lines 38-50).

It would have been obvious to on having ordinary skill in the art to modify the invention of LaBarre and Maeda to specifically include a means for further analyzing the pulses according to a calculated histogram, as taught by Johnson, because, as suggested by Johnson, the combination would have improved the pulse analysis by providing means for determining the frequency of occurrence of amplitude levels

thereby allowing the processing of the pulses for timing analysis (column 1, lines 29-45).

With respect to claim 17, the limitation requiring that the acquired signal be an alternative mark inversion communication signal that transitions between three signal values, is considered to be an intended use limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In the instant case, the structure of LaBarre, Johnson, and Maeda is capable of analyzing an alternative mark inversion communication input signal. Therefore, as understood by one having ordinary skill in the art, and admitted by Applicant on page 27, lines 29-30, the mode finder of LaBarre, Johnson, and Maeda would identify all the modes of the histogram corresponding to the acquired signal, such as three modes for an alternative mark inversions signal. Further, it is considered inherent that that an alternate mark inversion signal transitions between three signal values (see the supplied definition AMI).

8. Claims 7, 23, 29, 45-48, 51, and 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over LaBarre in view of Maeda and Johnson and further in view of U.S. Patent No. 3,656,060 to Bauernfeind et al.

As noted above, LaBarre in combination with Maeda and Johnson teaches all the features of the claimed invention except for specifying that the type of pulses (i.e. positive or negative) be inputted before processing.

Bauernfeind teaches a time interval measuring and accumulating device, such as an oscilloscope (column 1, lines 7-9), wherein the user of the oscilloscope specifies the input pulses as either positive or negative pulses before pulse processing occurs (column 2, lines 45-47).

It would have been obvious to one having ordinary skill in the art to modify the invention of LaBarre, Maeda, and Johnson to include specifying that the type pulse (i.e. positive or negative) be inputted before processing because Johnson does teach sampling the input data based upon a rising edge of each pulse of the sample clock, and Bauernfeind suggests that the combination would have insured correct counting of a plurality of pulses, such as counting the occurrences of pulses for use in the histogram of LaBarre, Maeda, and Johnson, by defining the initialization of the count to occur on the leading or trailing edge as required, as well as allowed for proper triggering and detection of the pulses as known in the art (column 1, lines 30-60).

Further, with respect to claim 58 since the invention of LaBarre, Maeda, and Johnson discloses storing a plurality of measurement data with a corresponding pulse identifier and Bauernfeind teaches obtaining a pulse type data for each pulse, the combination would have stored a pulse type data unit along with the pulse identifier for each pulse.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over LaBarre in view of Maeda and Johnson and further in view of U.S. Patent No. 5,410,617 to Kidd et al.

As noted above, the invention of LaBarre in combination with Maeda and Johnson teaches all the features of the claimed invention except for including a smoothing function to identify any of the one or more modes of the histogram.

Kidd teaches a method for adaptively thresholding grayscale image data by obtaining the image data and mapping the data in a histogram, using a look-up table, and incorporating a smoothing function (column 8, lines 37-54) to find peaks in the histogram (column 9, lines 13-15).

It would have been obvious to one having ordinary skill in the art to modify the invention of LaBarre, Maeda, and Johnson to include a smoothing function to identify any of the one or more modes of the histogram, as taught by Kidd, because LaBarre, Maeda, and Johnson does teach that the peaks of the histogram correspond to the modes of the histogram and Kidd suggests that the combination would have provided better peak/mode detection by removing very small peaks and rapid excursions in the histogram (column 8, lines 64-65).

Response to Arguments

10. Applicant's arguments with respect to claims 1-29, 44-49, 51, and 53-65 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 6,418,386 to Wong-Lam et al. teaches high and low voltage measurement in waveform analysis and teaches well-known max-min and histogram methods.

http://www.erg.abdn.ac.uk/users/gorry/course/phy-pages/ami.html provides the definition of "alternate mark inversion"

U.S. Patent No. 5,495,168 to de Vries teaches a method of signal analysis employing histograms to establish stable, scaled displays in oscilloscopes by obtaining a time-varying input signal, sampling the and storing the samples in an acquisition memory during a single acquisition (column 2, lines 53-67), generating a plurality of user-predetermined pulse measurements (i.e. amplitudes) of the samples (column 3, lines 9-14 and 35-40) and stores the pulse measurements in a second searchable memory (column 3, lines 1-4) in addition to global pulse measurement statistics (i.e. global max and min) comprising the results of statistical analysis of at least one of the pulse measurements (column 3, lines 51-53).

12. Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
March 6, 2005

MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800